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ABSTRACT

Traditional methods of recruitment and selection in academic administration have not placed an emphasis on formal training or preparation but have relied heavily on informal notions of experiential learning. Simulation as a device for representing complex processes in a manageable form, gaming as an organizing technique for training and indoctrination, and modeling as an analytical tool for concepts and principles can serve an unusually valuable purpose by reducing the conflict with traditional notions. Not only can simulation reduce the initial reluctance of administrators to seek formal training, but it has the potential to present concepts, principles, and techniques in an organized, integrative manner that could make their application a more likely prospect. In summary, the advantages and educational implications of simulation deserve far better attention than they have received from academic administrators. Under the right conditions and with the right preparation of simulation tasks, it is highly probable that administrative concepts, principles, and techniques can be conveyed in a realistic, meaningful fashion. (Author/PG)

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SIMULATION TECHNIQUES IN TRAINING COLLEGE ADMINISTRATORS

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TABLE OF CONTENTS

THE USES OF SIMULATION 1

SIMULATION GAMES IN TRAINING 2

SIMULATION IN HIGHER EDUCATION 5

SIMULATION TASKS FOR ADMINISTRATIVE TEAMS 7

Description of the Task 8

Definition of the Problem 9

Assignment of Roles 11

Rules of the Game 13

OUTCOMES AND REACTIONS 15

The Form of Solutions 16

PARTICIPANT RATINGS AND COMMENTS 20

EVALUATION AND CONCLUSIONS 26

THE USES OF SIMULATION

Simulation has many conceptual and methodological advantages. It is a useful concept in planning, training, research, and development and has fostered a variety of techniques widely adopted in military defense, manpower development, industrial management, and corporate planning. Some simulation techniques are particularly effective for the analysis, interpretation, and synthesis of complex processes in management and administration.

But simulation is, as Crawford (1966) has written, "a popular, meaningful, but slippery notion." Its uses in mission-oriented research have been particularly productive and its promise for computer applications to dynamic systems has been impressive. But its implications for education and training have not been well understood, and a great deal of wasted motion has resulted from many attempts to simulate learning situations and environments. Successful application is dependent upon conditions and factors that are not operative in formal instruction or classroom teaching.

The richness of the concept may be seen in its diverse applications. Simulation is regarded as a major tool for analysis in business and economics (Meier, Newell, and Pazer, 1969). Corporate planning models have proven useful in various industries and have shown promise for higher education (Casasco, 1970). Research applications have included the analysis of decision-making, problem-solving, clinical diagnosis, professional judgment, and group process. Studies of cognitive simulation and artificial intelligence have been especially provocative (Feigenbaum and Feldman, 1963). Training uses have ranged from the well-known Link trainer and war games on sand tables through miniaturized equipment and machinery to

highly organized management games involving computer models, in-basket techniques, and video-tape feedback of group decisions.

The "slippery" aspects of simulation are found in the confusion that adheres to games, models, and computers. Simulation gaming is frequently mistaken for simulation modeling, and the popularity of computer techniques often implies an essential requirement that does not follow. Neither games, models, nor computers are essential to simulation but all have been closely tied to its effective use. Games may involve little or no simulation, and the role of models and computer technology may be completely absent in simulation tasks. Training mockups are indicative of simulation devices that do not necessarily involve gaming or computer analysis. Conversely, fabricated environments, gaming, and computer models may be involved in numerous programs seeking to capitalize on the advantages of simulation (Guetzkow, *et al.*, 1972).

SIMULATION GAMES IN TRAINING

The implications of simulation for education and training are seen in the advent and popularity of business or management games. The advantages for management development were quickly perceived by industrial corporations and business games have been in use since the mid-fifties. Simulation games have permitted management trainees to observe the effect of their decisions under controlled conditions. Computer models permit the testing of strategies and decision rules under compressed time conditions and provide a systems viewpoint of the corporation or business firm that would be difficult to obtain under other conditions. Competition with other management teams provides a comparative basis for assessing the influence of group interaction and the development of operating policies and procedures (Cohen and Rhenman, 1961; Cohen, *et al.*, 1964; Graham and Gray, 1969).

Business games have been strongly advocated for numerous reasons. They are believed to require a systems view of the business organization while giving the individual manager an opportunity to test his own assumptions, plans, and decisions. The use of management teams is said to stimulate a high degree of involvement and to encourage a high rate of participation, as well as to permit participants to gain a better understanding of group process or interaction. But even more important, they are said to encourage rational, sequential problem-solving and decision-making that can then be evaluated with results ordinarily available in months or years.

The literature on business games is extensive but does not satisfy the demand for research on simulation as a training device in business and industry. As expected, the reactions of game participants are easier to evaluate than their acquisition of skills and competency. Dill and Doppelt (1965) have described the experiences that trainees apparently gained from the Carnegie Tech Management Game, one of the first games to be developed and used in a graduate program for business management. Working in teams of six to eight men, the students were observed to improve their analysis of organizational demands and to make a quicker, more sophisticated use of information. They became more cautious in testing specific decisions and more adept in presenting and defending their actions against outside criticism from boards of directors. The simulation was realistic in its requirement that students learn to participate as team members, to negotiate with external authority in a board of directors, and to devise effective decision rules in playing the game. The sequence of learning was apparently orderly in its progression from problems of organization to more active consideration of alternative strategies.

McKenney and Dill (1968) have considered the influence of team experience, participant ability, and

faculty assistance on student performance. Their findings suggest that homogeneous grouping or prior team experience may not be as important as the ability of individual players. Faculty members were apparently more effective as critics than as consultants and counselors. Starbuck and Kobrow (1968) also cast doubt on the effectiveness of faculty members in the role of advisors. Faculty members did not improve the profits or interpersonal relations of the management teams they advised but did find gaming useful for emphasizing fundamental concepts and correcting basic deficiencies in knowledge and understanding.

Marullo and Cribbin (1972) have indicated that the popularity of management games may be waning. Their survey revealed that over half of the nation's largest corporations did not use simulation for managerial development. For companies using simulation techniques, the reasons appear to be (1) the insight that simulation provides into the total enterprise, and (2) the development and application of management concepts and skills. Also given as a reason was the possibility of a behavioral science orientation to management. The primary reason given for not using simulation techniques in management development programs was the difficulty of evaluating the effectiveness of such procedures. The cost of program development, staff, and facilities was believed too high for the uncertain return implied in the use of simulation.

Simulation games at the elementary and secondary school levels have been advocated with much the same fervor. The social sciences are an area in which the potential uses of simulation as a teaching device are quite promising (Guetzkow, 1962; Inbar and Stoll, 1972; Fattu and Elam, 1965). Coleman (1968) has emphasized the appeal games have for both the sophisticated researcher and the inexperienced student. Gaming provides a situation in which both can learn from the same "caricature of social life." As Boocock and Schild (1968) point out, the innovation for education

comes from a combination of the ancient technique of gaming with the more recent means of simulation. Systematic efforts to develop an adequate theoretical base and to establish a continuing research effort date from the mid-sixties.

In brief, the advantages of simulation techniques in training have not been exploited despite their popularity. The research, planning, and development uses of simulation have been more obvious and perhaps more direct, but the reluctance to apply simulation concepts and principles to education has been noticeable. There is agreement that simulation games stimulate the interest of game participants and induce an appreciable degree of involvement. There is also agreement that games can be effective in conveying a systems perspective. There is considerable reservation, however, concerning the effectiveness with which simulation games can develop skills of analysis, interpretation, and synthesis; improve the actual competence of participants; and insure the successful transfer of insights and skills to real-life situations. Judged from the standpoint of participant satisfaction, simulation games have proven educationally sound. Judged from the objective analysis of skills, competencies, and applicational transfer, the effectiveness of simulation games requires further study.

SIMULATION IN HIGHER EDUCATION

The uses of simulation in higher education have not been extensive. Systematic efforts have been made to develop computer models that would facilitate institutional and program planning but a similar effort has not been made in the area of training. Planning models have been limited in both the scope of their applications and the range of their implications (Fincher, 1972; AED, 1973). Efforts to develop simulation games for academic administrators have been limited to informal attempts at workshops and seminars. Neither systematic research on the training of

administrators nor research on the development of planning models has kept pace with progress in military, industrial, or governmental fields. Despite the advent of a managerial revolution in higher education (Rourke and Brooks, 1966), there is little evidence that academic administrators are receiving rigorous training in management concepts and techniques (Fincher and McCord, 1973).

A serious drawback to the use of simulation games in higher education is the reluctance of many administrators to consider gaming a worthy endeavor. Although exposed to gaming techniques in military and industrial organizations, many administrators apparently believe such procedures are inappropriate for academic responsibilities. The reactions of other administrators to planning models, however, suggest that simulation techniques have great potential not only for planning, research, and development but also for training in administrative decision-making, group problem-solving, and policy formulation. The realization of this potential will depend upon the systematic development of simulation games that are both acceptable and beneficial to administrators who are already sensitized to the range and scope of administrative problems.

One effort to employ simulation in a training program for academic administrators suggests that such techniques can be used to constructive advantage. If suitably employed, simulation games are acceptable to administrators engaged in inservice or career development programs and can be reasonably effective in conveying new concepts and principles of administration. Given proper conditions and a realistic simulation with which to cope, academic administrators may respond with the same enthusiasm and competitive spirit that is evident in business games for management trainees.

SIMULATION TASKS FOR ADMINISTRATIVE TEAMS

The simulation exercise discussed here was devised for 20 administrative teams participating in two professional development projects funded under the Education Professions Development Act by the U. S. Office of Education. Each project was conducted over a period of one year and involved the top administration of 20 colleges located in the states of Georgia, South Carolina, North Carolina, Tennessee, Alabama, or Florida. Thirteen of the colleges were two-year colleges and seven were four-year colleges. The first project was begun in August, 1969, and the second in August, 1970. With the exception of slight modifications that were made to accommodate the two different groups of colleges, both sets of administrative teams participated in the same simulation exercise. Both simulation games were conducted during a three-day conference scheduled as the beginning phase of the year-long project.

The purpose of the two EPDA projects was to assist the administration of the participating institutions through an extensive exposure to administrative concepts and principles. Central to the project was the concept of administrative team leadership that had been developed earlier in a series of conferences sponsored by a private foundation (Anderson, 1966; Drewry, 1967; Feltner, 1968). The concept of administrative team leadership was based on the idea of participatory management and shared responsibility for administrative decision-making (Drewry, 1968). The concept recognized the increasing demands of effective administration and fostered a team or cabinet approach comprised of those administrative officials reporting directly to the president.

The colleges participating in the projects reflected the diversity of two-year and four-year institutions in the Southeastern region of the nation. Enrollments ranged from approximately 300 to over 1200

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students. One-half of the colleges were publicly controlled and one-half were private colleges. Within each group the variety of governing arrangements was appreciable. Most public colleges were units of statewide systems but one was supported at the county level only. Four institutions were established to serve the needs of black students while one had been founded as a normal school for American Indians. The private colleges were related to various religious denominations but two had been independent from the beginning. Each of the colleges had agreed to participate in the project for a period of one year and had committed a substantial amount of staff time and effort in doing so.

Presidents of the institutions were invited to participate in the projects with the understanding that they themselves would attend all conferences and workshops with the administrative officials they designated as team members. The composition of the 20 administrative teams varied from three to eight members but consisted primarily of: (1) the president, (2) the chief academic officer or dean, (3) the chief business officer, (4) the dean of students, and (5) the director of development, public relations, or alumni affairs. The job titles held by the individuals varied, depending on the preferences of the institutions, but the job duties and functions were reasonably consistent from position to position. The total number of individuals participating in the simulation exercise was 84; with the exception of one or two persons who were inadvertently absent, the participants constituted the top administration of the 20 participating institutions.

Description of the Task

The simulation task devised for the administrative teams consisted of a relatively simple problem to be solved during a 90-minute meeting called by the president of a simulated college. Background materi-

als on the college were prepared for distribution to members of each administrative team prior to the working session. The first session of the conference had covered the basic approach to administrative team leadership and presumably laid the groundwork for the working session with the simulation task. Participants were asked to read the materials prior to the working session and to be prepared to deal with the specific problem described in the materials. Each team was assigned a conference room in which to hold the meeting and team members were asked to report to that room at the designated time. With the exception of a single observer who was not to participate in the simulation exercise, only members of the administrative team would attend. The president of the college was to conduct the meeting as he thought best. Further instructions to each participant were contained in the materials provided.

Definition of the Problem

The problem posed in the simulation exercise was both specific and simple. The college was confronted with a substantial and unexpected reduction in enrollment. Because of its heavy dependency upon tuition for operational expenses, the administration of the college should move quickly to solve its budgetary problem. During the meeting called by the president, the administrative team was to arrive at a specific conclusion concerning the college's plight and to decide upon a definite course of action to be taken in the next few days. The solution arrived at by the administrative team was to be recorded for later discussion by the other administrative teams.

Background materials on the college described in brief terms its history and development. The college was church-related but denominational control over the college had become increasingly liberal in recent years. There was no lack of autonomy or independence, therefore, in moving to cope with the problem posed in

the simulation exercise. The location of the college was in a commercial center of moderate size with adequate transportation and communication facilities for future growth. Although not highly involved in community affairs in the past, the door was clearly open for the college to assume a more constructive role in the community. The presence of some light industry in the community provided some possibility of technical-vocational course offerings within a curriculum that had been predominantly liberal arts.

The students of the college were described as having an adequate preparation for college and moderate academic ability as measured by standardized tests. The majority of students was still female, however, because of the college's historical development. The faculty was described as having respectable academic credentials and a strong orientation to the liberal arts. They saw the college's mission as the provision of a good general education for graduates who would return to their original hometowns. The faculty had occasionally offered evening classes in art and music appreciation but had resisted the introduction of technical-vocational courses in the past.

Other information on the college included a brief description of its top administration, the inadequacy of its long-range planning efforts, and the immediate plans of the college to build another dormitory that would permit it to maintain its traditional orientation and present quality of instruction. In their respective roles as members of the college's administrative team, each participant in the simulation exercise had access to other information concerning the college, its present crisis, and its future possibilities.

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Assignment of Roles

Five roles as members of the administrative team were assigned participants in the simulation. The administration of the college consisted of a president, an academic dean, a business officer, a dean of students, and a development officer. To avoid the usual difficulties involved in role-playing, each participant was assigned the role most closely related to his own job duties and responsibilities. As explained to the participants, each person was to play his own role. No descriptions of role characteristics or responsibilities were given for the five positions in the college. Each participant was to bring his own work experience and knowledge to his particular role in the exercise. In doing so, many assumptions concerning the qualifications and experience of the roles could be eliminated and the difficulties of playing a fictitious role could be removed altogether. The only necessity of role-playing as such was in the few colleges having only three or four administrators present at the conference. Here it was necessary for one or two members to carry additional responsibilities for purposes of the simulation exercise. Administrators from the two colleges having more than five members present were asked to play the role assigned by their own job duties and responsibilities.

In the distributed materials each member of the administrative team was given the same general information on the college and a memorandum from the president. The latter stated briefly the nature of the problem with which the college was confronted and called a meeting in which solutions would be discussed. Also included in the materials was specific information about the college that was relevant to the participant's role and unavailable to other members of the administrative team. In other words, each member of the administrative team had common knowledge about the college and its problem but specific information that he was expected to supply at the meeting. No

member of the team, including the president, had all of the information given about the college, and each member had information which no one else had.

Since the purpose of the simulation exercise was to provide insight into the process of administrative decision-making, the provision of both general and specific information was thought to make the simulation more realistic. The deliberate withholding of all information from any one member of the team was calculated to reduce the possibility of dominance. Each member of the team was dependent upon other members for information needed for an adequate solution. That information could be offered, or withheld, depending on the relevance assigned the information by the participant. The possible withholding of relevant information through misjudgment of its relevance or a reluctance to participate fully in administrative decision-making was not thought to be uncharacteristic of reality.

The specific information provided each participant was given in the form of working notes that the participant might ostensibly make in preparation for the meeting. For example, the academic dean's package included a projection chart which showed the college's enrollment for the past six years and its expected enrollment for the next two years. The business officer's notes included information on the college's total budget, costs per student, and the estimated loss from the decline in enrollment. The president, dean of students, and development officer also had information that should be relevant to the problem under consideration. At the bottom of each set of notes were one or two questions that the participant might conceivably raise at the meeting. These questions were for suggestive purposes only, and the participants were instructed that they did not necessarily lead to any particular solution and should not dominate the participant's thinking.

Rules of the Game

Instructions stated explicitly that the simulation exercise had been devised to encourage a process of team decision-making and not merely a process of problem-solving. The emphasis was on the process itself and not on the solutions that the various teams could derive. No effort would be made to judge the quality of team decisions but each team was asked to make a decision that could be explained and defended to the other administrative teams. A special emphasis was placed on the fact that no one best solution was available and the process, if nothing else, should disabuse the participants of the notion that a single solution could be found by all participating teams. It was equally improbable that all teams would agree on the merits of any particular solution suggested by one of the teams.

The explicit rules of play were deliberately kept to a minimum. The problem had been chosen for both its generality and its vague formulation. It was thought to be a problem that might be common to the participating colleges, but no insinuation was made that the problem actually occurred in the manner described or that it might actually be handled in a specific way. No effort was being made to teach specific techniques of problem-solving but to focus in a meaningful manner on the processes of administrative decision-making.

Participants were told they could supply any additional facts they thought to be essential to a realistic solution. Time did not permit an exhaustive coverage of information that might be needed, and interest in the game would have waned if an inordinate amount of preparation had been necessary. The freedom to create relevant facts was in keeping with the Commander's Estimate of the Situation advocated in military tactics. In the absence of facts bearing on the situation, logical assumptions that were compatible

with other known facts were permissible. By analyzing the given facts and the logical assumptions that the team could make, it should be possible to derive a realistic solution without mastering excessive detail and without employing rigid methods of analysis. The logical consistency of these assumptions could be tested in the critique that would follow the working session.

Only the time limits were rigid. The administrative team must reach some solution in the time allotted and be prepared to present their solution in a group critique that would follow. The observer for each team was present only to answer general questions about the game itself and what was expected of the administrative team as a group. The observer was permitted to answer no questions about the problem or its anticipated solution. His function was to keep the group focused on the process of administrative decision-making in the event that they strayed too far from the task. Following each working session the observer was asked to complete an evaluation form concerning the performance of the team. No effort was made to evaluate the performance of individuals, and no record of the process itself was made. The intent was to keep the process as open as possible, and further efforts to evaluate performance were thought to be ill advised.

Following the working session of 90 minutes, each team was asked to present its solution in a session where the solution would be critiqued by other administrative teams. To make the critique as meaningful as possible, the administrative teams met in groups of three or four before hearing the solutions of all ten teams. One member of each team was asked to represent his team in presenting its solution but the group critique was to be an open session in which all participants could agree or disagree with the proposed solutions. The general critique of all ten teams would be used more to summarize the various

solutions and to delineate their common dimensions, strengths, or weaknesses. The group critiques were to serve the function of feedback for a more intensive self-evaluation that each administrative team was expected to make of its own performance.

OUTCOMES AND REACTIONS

The group critique of team solutions was, in all probability, the most valuable part of the simulation exercise. The teams made an open presentation of their various solutions, displayed an appreciable degree of ego-involvement in their product, and offered a spirited defense of their deliberations when criticized by other team members. To no small extent, the simulated college gave an opportunity to project one's own administrative standards, preferences, and inclinations into the situation. Differences in administrative styles and motifs were obvious from the discussion that took place in the group critique and the reactions of other administrators to their articulated reasoning and judgment were a challenging experience for many of the participants. Inter-team reaction to several solutions was particularly strong and offered an occasion for some indepth thinking about the duties and responsibilities of academic administration.

The various dimensions of team solutions ranged from the obvious through a variety of interesting possibilities to some genuinely creative responses. The participants accepted literally the instructions to supply needed facts. Each of the 20 teams created facts they believed to be necessary for an adequate solution. The majority of these additional facts were logical inferences from the information given about the community in which the college was located but undoubtedly reflected possibilities or conditions within the team's own institution. The tendency to read their own college into the simulation proved to be quite strong and one of the more constructive aspects

of the simulation exercise. The occasion permitted a view of administrative decision-making that may not have been possible under other conditions. Dealing with a fictitious college in a situation obviously created for pedagogical reasons, the participants had less reason to be defensive about their actions and the implications of their judgment.

The intensity of reaction to several aspects of the proffered solutions suggested a genuine opportunity for learning. Actions that might have been taken by one or two administrative teams were emphatically denied by the critiques of other teams. For example, the raising of tuition to offset the budgetary deficit was cogently rejected on legal, institutional, and moral grounds. Other apparent quick-and-easy solutions were rejected in much the same tone but with substantive reasons. The give-and-take of the reaction to such solutions or their possible implications conveyed the notion of constraints on administrative action in a highly meaningful manner. The discussion not only identified actions which were not permissible under the conditions described in the simulation but formed excellent reasons why such actions were inadvisable or unwise.

The Form of Solutions

The specific content of the solutions varied according to the administrative team's understanding of the simulated college and their own experience as college administrators. Indeed, some specific features of a team's solution were often justified in terms of situations or conditions prevailing on the team's own campus. The assets, resources, perquisites, and faculty talents of the team's own college were quickly seized as components of a possible solution. In one or two solutions the team actually invoked a talented faculty member or a wealthy trustee by name or title.

The general form of the solutions, however, followed a predictable pattern. Without noticeable exception, the teams responded to the simulation in terms of the college's need for better long-range planning. There was a consensus that the problem posed in the simulation should not have arisen in the particular manner it did. The reason for the problem, therefore, was a failure of administration. Many of the participants expressed serious reservations about the continued leadership of such an administration but no team suggested that the president of the college or any other administrator should resign. Although not reaching that level of crisis, the problem was definitely one that should be prevented in the future.

Faculty and trustees were intimately involved in most solutions to the problem. Many participants apparently believed the situation depicted a failure of leadership from the top down and called for a reorientation of both trustees and faculty. The former was believed to be derelict in permitting the college to base its operational expenses so heavily on tuition, and the latter were excoriated somewhat for clinging to outmoded concepts of education. Yet, both groups were perceived as an essential part of any realistic solution. The trustees were obviously the key to any permanent form of solution while the faculty could be counted upon for an immediate alleviation.

The talents of the faculty would be employed by a majority of the administrative teams. Special lectures, concerts, exhibits, and short-term courses should appeal to the community in which the college was located and should provide a source of immediate income to the college. To gain the faculty's support in this endeavor, special inducements would be made but the administrative teams counted quite heavily on the faculty's dedication and institutional loyalty. A less active involvement of the faculty in the solution consisted of several adjustments in teaching workloads, tenured positions, retirement benefits, and

academic leave. One or two solutions were particularly impressive in their adjustment of faculty assignments. The situation was obviously one calling for a quid pro quo; individual faculty members would benefit from certain arrangements and the college would benefit from a rearrangement of faculty responsibilities.

Community resources were the other dominant dimension in the team solutions. Virtually all teams responded to the problems in terms of the college's need to establish a more active community role. The given characteristics of the community suggested community needs that the college should be meeting, and a majority of the solutions involved an active appeal to the commercial and industrial leaders of the community. Several solutions provided a mutual exchange of facilities and physical resources that would accrue to the benefit of both. Modifications in the course offerings of the college should serve community needs more directly while the industrial growth of the community should lend better support to the college. The difficulties in dealing with a faculty that was traditionally oriented were to be countered by more active recruitment of both teachers and students from the commercial and industrial firms of the community. Computer facilities and programmers, industrial tools and equipment, and other technical assets of the community could be mobilized for instructional use by the college in generating technical-vocational programs to complement its traditional role. The first step in this new relationship was to be an open and honest discussion of the college's present situation.

No team responded to the problem as a financial setback only. The financial and budgetary implications of the problem were carefully considered by most of the administrative teams but none of the teams thought the problem to be solved by the elimination of the immediate budgetary deficit. The degree to which many of the teams considered the educational and in-

stitutional implications of the problem was commendable. Indeed, the immediate resolution of the budgetary deficit posed no special difficulty for any of the teams. The apparent simplicity of the problem, their own administrative experience, and the generality of leads given in the simulation materials precluded the fixation of participants on the financial aspects of the problem.

The obvious need for self-study and long-range planning was to be met in several phases. Several of the administrative teams would initiate a study to determine the reasons for their present predicament while others would seek a more systematic clarification of the college's mission. A lack of planning was perceived by the participants as the major cause of the problem, and planning was the preventive for future occurrences. The degree to which the college's overall purposes and goals would be recast differed from team to team. Perhaps reading their own college into the simulation more than was necessary, some teams expressed a fairly strong antipathy to the liberal arts tradition that evidently produced the problem. Not only was the mission of the college to be changed, but the faculty, the board of trustees, and the academic programs were to be recast in the college's new image. The utopian aspects of such solutions were tempered considerably by the pragmatic critiques of other administrative teams who saw far less opportunity to reconstruct the college.

In brief, the gist of most team solutions was a bit of fiscal legerdemain to alleviate the immediate problem of reduced income and a concerted move to place the college on a more substantial footing. Faculty and community resources were the immediate components of most solutions while long-range planning and institutional development were the obvious agenda for future meetings of the administrative team.

PARTICIPANT RATINGS AND COMMENTS

The active involvement of participants in the simulation exercise was clearly evident. Because no excessive demands were made on their role-playing capabilities, the participants were able to respond to the simulation materials in commendable fashion. No team experienced undue difficulty in adjusting to the demands of the situation. Because each participant played with members of his own administration, an appreciable degree of identification and ego-involvement was evident in the team solutions. Each displayed a strong problem-orientation to the simulation and readily arrived at a solution worthy of consideration by the larger group of conference participants. Since the emphasis of the simulation was on the process of administrative decision-making and not on the quality of the product, the experience was low-keyed in its potential threat to participants and genuinely encouraging in its overall possibilities for professional development.

To gain a better appreciation of participant reaction, each member of an administrative team was asked to complete a rating scale on the simulation exercise. Items on the rating scale solicited the participant's opinion of the simulation task and its effectiveness in meeting the objectives of the training project. Each item could be rated on a five-point scale in which five denoted the highest degree or amount.

A summary of participant ratings is provided in Table 1. As shown, the participants regarded the simulation as being effective and realistic. They found no difficulty in assuming their role as a team member and judged the freedom of team discussion to be quite high. The relevancy and consistency of the information given by the simulation materials were judged to be substantial but participants were inclined to regard the adequacy of information as some-

TABLE 1

Summary of Evaluation Ratings by Participants in Simulation Task for Administration Teams

Rating Variables	Mean Rating	Standard Deviation
Effectiveness of simulation	4.5	.50
Realism of simulation	4.6	.49
Adequacy of information	3.6	.76
Relevancy of information	4.4	.68
Consistency of information	4.3	.66
Necessity to supply missing facts	3.5	.76
Quality of team decision	4.1	.78
Immediacy of decision	2.7	.81
Ease of role assumption	4.6	.70
Freedom of discussion	4.7	.61
Frequency of different opinions	3.3	.77
Helpfulness of simulation in understanding administrative team concept	4.3	.68
Potential effectiveness of simulation for other administrators	4.4	.85

what minimal. Only seven percent of the 84 participants regarded the information as "most adequate" while almost nine percent thought it to be decidedly less than adequate. As a group, they were generally satisfied with the quality of their team decision and thought it necessary to supply missing facts only occasionally. The team decision was not reached with great speed, however, and at least seven percent of the group thought the decision to have been reached very slowly. Differences of opinion among the team members were discussed fairly frequently but not often enough to retard the progress of the group decision.

A majority of the participants agreed the simulation had been helpful in understanding the concept and practice of an administrative team. They were even more enthusiastic about the assistance that similar simulation tasks could provide other college administrators. Less than 15 percent of the total group expressed any reservation about the simulation, its helpfulness, or the potential effectiveness of simulation in general. None of these expressed what could be interpreted as serious reservations.

When asked who the most influential member of his team had been, the participants identified the academic dean more often than any other team member. The president was identified as the most influential member by 36 percent of the participants, a finding that may have been influenced by the way in which information to the participants was controlled. The most significant aspect of Table 2, however, is the fact that every member of the team was perceived by at least five percent of the group as being the most influential member of the administrative team. Discounting the possibility that self-esteem would require a few members to check themselves, it would still follow that the simulation was successful in distributing influence through its control of information. The responses clearly indicate that no one member of the team dominated the administrative team

TABLE 2

Academic Administrator Identified as the Most Influential Member of the Administration Team

Position	Number	Percent
President	29	35.8
Academic Dean	32	39.5
Business Officer	10	12.3
Dean of Students	4	4.9
Development Officer	6	7.4

meeting. The order of perceived influence is in keeping with the nature of the problem, the distribution of information to team members, and the concept of participatory management. Other kinds of problems would be expected to produce a different order of perceived influence.

Participant ratings of the simulation are tempered only slightly by the ratings of observers. As would be expected, observers were less sanguine about the enthusiasm of participants, the overall effectiveness of the simulation task, and the ease of communication within the administrative teams. Yet, there was considerable support for conclusions concerning the realism of the simulation, the adequacy and relevancy of information, and the helpfulness of the simulation in understanding the concept of an administrative team. Since the presence of the observers may have been a disturbing factor in the administrative

team meeting, the slight disparity between their ratings and those of the participants need not discourage future efforts.

When asked to suggest ways in which the simulation exercise could be improved, the participants were especially generous. Virtually every aspect of the simulation was mentioned by some participants and only a few failed to supply suggestions that should be considered. A substantial majority addressed their comments to the basic design of the simulation while at least 50 percent offered suggestions on the information that had been supplied the team members.

Many of the suggestions were logical by-products of the experience. Some participants suggested more time; some wanted a longer meeting while others thought the simulation should run over a period of days. Some participants thought the exercise had emphasized the problem and its solution to the detriment of procedure; a few wanted some form of demonstration prior to the administrative team meeting while one or two others thought that direct assistance was needed in the process of administrative decision-making. At least two participants thought the exercise could be improved by the addition of a devil's advocate to each administrative team.

Comments and suggestions concerning the nature and extent of information were quite pointed. It distressed some participants that no one member of the team knew everything, and it apparently bothered others that the information was deliberately controlled. Other participants felt uncomfortable about supplying missing facts, believing that this lacked the realism implied by other features of the simulation task. The most insistent suggestion, nonetheless, was for more specific, detailed information about the college. Many participants believed their team solution could have been greatly improved with the addition of facts and figures concerning other aspects of the college

and its operations. Their examples of needed information run the gamut of administrative data and prompted the remark from one observer that as true administrators, their appetite for data was insatiable.

Perhaps more important for future efforts, the suggestions of participants denoted the lack of specific, concrete feedback on team performance. Some participants believed this should have been provided by the observer following the team meeting while others wanted a more direct comparison of their performance with other administrative teams. There was appreciable resistance to the fact that no single best solution emerged from the group critiques or the summary session. The investment of time, effort, and ego apparently created a readiness to be evaluated from a more authoritarian basis. Others thought that the need for further evaluation could have been satisfied by a video recording of their team meeting with a playback to other teams.

The need for evaluative feedback was not acknowledged, however, by all participants. At least one suggestion would have a different problem for each of the participating teams so that a comparison of problems-and-solutions could be made. This would have eliminated the competitive effect of having the teams attack the same problem. Other participants would remove the implied evaluation in the observer's presence. Since the observer supplied no facts needed for the solution and did not facilitate the decision process, his presence was threat enough.

The generality of the problem drew comments and suggestions from many participants. Several participants volunteered a strong endorsement of the problem and thought that considerable time and effort had been invested in its development. Others were less enamored: some thought it too specific while an equal number thought it too general. At least one participant thought that since the college had been specif-

ically created for the occasion, its creator should have supplied an administrative team also.

EVALUATION AND CONCLUSIONS

Simulation games offer a number of advantages for training and development purposes in academic administration. Traditional methods of recruitment and selection in academic administration have not placed an emphasis on formal training or preparation but have relied heavily upon informal notions of experiential learning. The belief that the right man will learn the job is still predominant in most corridors of administrative ascent.

The acceptability of inservice preparation or professional development for academic administrators has increased greatly in the past decade, however, and systematic efforts to train or develop administrators are openly encouraged. It is still characteristic, however, that such efforts cannot be pursued too directly or too systematically. There is still a reluctance to regard academic administration as an occupation for which applicants may be formally trained, competitively selected, and openly evaluated. A tradition prevails in which academic credentials must take precedence over administrative preparation and an early interest in academic administration is thought to be a major disqualification.

Simulation as a device for representing complex processes in a manageable form, gaming as an organizing technique for training and indoctrination, and modeling as an analytic tool for concepts and principles can serve an unusually valuable purpose by reducing the conflict with traditional notions. Administrators may be induced to participate in simulation games whereas they would not enroll in formal courses, seminars, or workshops that deal with similar topics in a traditional manner. Not only can simulation reduce the initial reluctance of administrators

to seek formal training but it has the potential to present concepts, principles, and techniques in an organized, integrative manner that could make their application a more likely prospect. By requiring the active participation of trainees and by demonstrating the direct cogency of their substance, simulation games could provide a meaningful, genuinely educational experience for their participants. The inherent competitiveness of games or team play, the realistic challenge of certain computer models, and the stimulus of interpersonal action are indicative of the training possibilities that could result from their adaptation and systematic use.

The success of simulation games or models, however, is directly dependent upon their face validity. The first objective of the simulation task described here was to construct a problem that would be regarded as realistic by the team members and invite their active participation. To gain their acceptance, it was necessary that the problem not be so narrow or constrictive as to preclude a serious, reasonably extensive, decision-making process. Time limits were believed to be crucial. Too long a session would have defeated the purpose intended; too short a session would have aborted the effort. By its realism the simulation exercise did succeed in generating a noticeable degree of rational, problem-solving effort. To what extent it permitted the exercise of creative or critical intelligence is, of course, debatable.

Because of the difficulty that many adults have in assuming an assigned role in simulation games, the assignment of each team member to his own professional role was especially opportune. The team member's contribution was not contingent upon his ability to adopt someone else's role or to put himself in the other person's shoes. While the college and its specific problem were fictitious, there was no need for the person to assume a fictitious role. The participant met with other team members who were his own adminis-

trative colleagues. Any anxiety the participant might have had about his role and any ego-defenses he felt compelled to maintain should have been lessened by the fact that he and his colleagues were asked to participate as a team. The experience was a new one for all concerned.

The control of information in the simulation exercise was a deliberate effort to force team play. Given the objectives of the overall project, it was thought the essential role of each team member could be driven home if that member possessed some information the other members did not have. It was thought especially desirable that the president not have all the information about the college. The background materials on the college, therefore, were hopefully designed to suggest possible courses of actions for the administrative team and to designate certain constraints or limitations while leaving the team play as open as possible. The nature and quality of the solutions devised in the administrative team meetings suggest that this particular goal was gained.

The construction and development of simulation games for administrators in higher education is necessarily time consuming. The definition of problems has a strong tendency to be provincial or particularized, depending on the perspective from which the problem must be viewed. An optimal degree of vagueness would appear necessary for participants to formulate the problem in their own terms. Yet, the indefinite or nondescript aspects can be overdone and can easily dominate other features of the effort. If game play is to have a comparable base, the potential solutions must converge on general or common dimensions of academic administration.

Although high speed computers are ideally suited for collapsing time, their use is not essential to realistic simulation games. Where meaningful indices of future progress can be projected or predicted, the

computer can lend an added dimension to the game play by permitting participants to test their various assumptions, general hypotheses, or pet theories. Given a workable model of the organization or institution, simulation games can be particularly adept in answering "What If" questions. Administrative decisions can be verified; institutional policies can be validated; and plans can be perfected.

The major weakness of the simulation exercise for administrative teams is the lack of rules for scoring the play. It is clear from participant reactions that they wanted some objective basis for comparing their performance with the other administrative teams. The deliberations and solutions of other teams were of particular interest to the various participants, as shown by the spirited discussion in the group critiques. The summary session, however, proved to be less than satisfactory to many participants. The suggestions and leads from the various teams could be pooled for a better perspective on the problem and its possible solutions, but no criteria existed for judging a composite solution. Some participants would have been better satisfied if the simulated college had been an actual college and the problem an historical event. In this way the success or failure of the actual solution would have been borne out by later events and developments. There would have been some comfort in knowing the college was still alive and open.

The desire for evaluative feedback is indicative of the competitive nature of simulation games, the intrinsic interest they appear to hold if properly constructed, and the readiness with which groups will enter into team play. A limitation of many planning models is the failure to provide a comparative base for judging team performance. Computer models have been quite attractive because they promised a better conceptual grasp of policy formulation and administrative decision-making. By compressing time frames, the

computer can project future states of the organization and depict the consequences of today's decisions. The opportunity to develop and test strategies can be quite advantageous as long as the evaluation is ipsative or marginal. Normative or comparative bases for judgment have not been available, however, because of the divergent paths taken by planning models and simulation games.

In summary, the advantages and educational implications of simulation deserve far better attention than they have received from academic administrators. Under the right conditions and with the right preparation of simulation tasks, it is highly probable that administrative concepts, principles, and techniques can be conveyed in a realistic, meaningful fashion. The potential for integrative experience in which analytic concepts and techniques are synthesized is definitely present and should be exploited. If that potential is to be realized, however, it will be necessary to exercise a reasonable degree of moderation. The enthusiasm for games, models, and simulation devices in general is often overdone, and expectations for their successful application frequently outrun their delivery.

REFERENCES

Academy for Education Development. *Let's End the Confusion about Simulation Models.* Washington, D.C.: Management Division, AED, 1973.

Anderson, Conwell A. (Ed.) *Administrative Team Leadership in Concept and Practice.* Institute of Higher Education, University of Georgia, 1966.

Boocock, Sarane S. and Schild, E. O. (Eds.) *Simulation Games in Learning.* Beverly Hills, Calif.: Sage Publications, 1968.

Casasco, Juan A. *Planning Techniques for University Management.* Washington, D.C.: American Council on Education, 1970.

Cohen, K. J., Dill, W. R., Kuehn, A. A., and Winters, P. R. *The Carnegie Management Game: An Experiment in Business Education.* Homewood, Ill.: Irwin, 1964.

Cohen, K. J. and Rhenman, E. "Management Games in Education and Research." *Management Science,* 1961, 7, 131-166.

Coleman, James S. "Preface." In Sarane S. Boocock and E. O. Schild (Eds.) *Simulation Games in Learning.* Beverly Hills, Calif.: Sage Publications, 1968.

Crawford, Meredith P. "Dimensions of Simulation." *American Psychologist,* 1966, 21, 788-796.

Dill, W. R. and Doppelt, N. "The Acquisition of Experience in a Complex Management Game." In Nicholas A. Fattu and Stanley Elam (Eds.) *Simulation Models for Education.* Bloomington, Ind.: Phi Delta Kappa, 1965.

Drewry, Galen N. (Ed.) *The Administrative Team and Long-Range Planning.* Institute of Higher Education, University of Georgia, 1967.

Drewry, Galen N. *The Administrative Team: What It Is and How It Works.* Institute of Higher Education, University of Georgia, 1967.

Fattu, Nicholas A. and Elam, Stanley (Eds.) *Simulation Models for Education.* Fourth Annual Phi Delta Kappa Symposium on Education Research. Bloomington, Ind.: Phi Delta Kappa, 1965.

Feigenbaum, E. A. and Feldman, J. (Eds.) *Computers and Thought.* New York: McGraw-Hill, 1963.

Feltner, Bill D. (Ed.) *The Administrative Team: Relationships to Internal and External Groups.* Institute of Higher Education, University of Georgia, 1968.

Fincher, Cameron. "Planning Models and Paradigms in Higher Education." *Journal of Higher Education,* 1972, 43, 754-767.

Fincher, Cameron and McCord, Michael. *Management Concepts in Academic Administration.* Institute of Higher Education, University of Georgia, 1973.

Graham, R. G. and Gray, Clifford E. *Business Games Handbook.* New York: American Management Association, 1969.

Guetzkow, Harold S. (Ed.) *Simulation in Social Science: Readings.* Englewood Cliffs: Prentice-Hall, 1962.

Guetzkow, Harold S., Kotler, Philip, and Schultz, Randall L. (Eds.) *Simulation in Social and Administrative Science.* Englewood Cliffs, N. J.: Prentice-Hall, 1972.

Inbar, Michael and Stoll, Clarice S. *Simulation and Gaming in Social Science.* Riverside, N.J.: The Free Press, 1972.

Marullo, Jerome and Cribbin, James J. "Whatever Happened to Management Simulation?" *Management Review*, 1972, 61 (5), 12-18.

McKenney, James L. and Dill, W. R. "The Effects of Team Assignment and Faculty Boards on Student Attitudes and Learning." In Sarane S. Boocock and E. O. Schild (Eds.) *Simulation Games in Learning.* Beverly Hills, Calif.: Sage Publications, 1968.

Meier, Robert C., Newell, W. T. and Pazer, H. P. *Simulation in Business and Economics.* Englewood Cliffs, N.J.: Prentice-Hall, 1969.

Rourke, Francis E. and Brooks, Glen E. *The Managerial Revolution in Higher Education.* Baltimore: Johns Hopkins Press, 1966.

Starbuck, William H. and Kobrow, Ernest. "The Effects of Advisors on Team Performance." In Sarane S. Boocock and E. O. Schild (Eds.) *Simulation Games in Learning.* Beverly Hills, Calif.: Sage Publications, 1968.

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